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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Stephen C. Hahn

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1747

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07/18/2006

SUN MICROSYSTEMS INC.  
C/O PARK, VAUGHAN & FLEMING LLP  
2820 FIFTH STREET  
DAVIS, CA 95618-7759

EXAMINER

BULLOCK JR, LEWIS ALEXANDER

ART UNIT

PAPER NUMBER

2195

DATE MAILED: 07/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding..

<b>Office Action Summary</b>	<b>Application No.</b> 09/964,148	<b>Applicant(s)</b> HAHN ET AL.	
	<b>Examiner</b> Lewis A. Bullock, Jr.	<b>Art Unit</b> 2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,6-8,10,12,13,15,17-19,21,23,24,26,28-30 and 32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6-8,10,12,13,15,17-19,21,23,24,26,28-30 and 32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4, 6-8, 10, 12, 13, 15, 17-19, 21, 23, 24, 26, 28-30 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over BRENNER (U.S. Patent 6,859,926).

As to claim 1, BRENNER teaches a method for allocating computer system resources (system resource) between concurrently executing workloads, comprising: establishing a first resource pool (class) that specifies resources (system resources), wherein the plurality of different computer system resources are components of a single computer system, wherein the computer system resources include central processing units (CPU time), and at least one of memory (shares of memory), swap space, network interfaces, and scheduling classes (col. 5, line 61 – col. 6, line 3; col. 6, lines 12-16), and wherein establishing the first resource pool involves establishing minimum size (minimum amount) and maximum size requirements (maximum amount) for a given resource that can be assigned to the first resource pool (col. 6, lines 12-16); allocating the plurality of different computer system resources (resources) to one or more resource pools (classes), including the first resource pool, to create resource allocation (associated number of system resources to each class) (col. 5, line 61 – col. 6, line 3), wherein requirements of the first resource pool (max amount / min amount) are satisfied

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(via calculating the percentage goal and allocating accordingly) (col. 7, line 64 – col. 8, line 15; col. 8, lines 38-65), and wherein the resources are assigned to the first resource pool (higher priority class gets its resources) wherein prior to allocating the plurality of different computer system resources (allocation of additional resources), the method comprises: verifying that collective requirements of the one or more resource pools can be satisfied (via calculating the percentage goal and adjusting the priority allocation indication accordingly such that additional resources are allocated based on priority) (col. 7, line 64 – col. 8, line 15; col. 8, lines 38-65; col. 9, lines 18-24; col. 10, lines 10-25); and if the collective requirements cannot be satisfied, signaling a condition (via overcommitting the resources and signaling an orange range condition) (col. 11, line 56 – col. 12, line 5); and wherein resources (resources) allocated to the first resource pool (class) can change over time (via the allocation of additional resources) (col. 7, line 64 – col. 8, line 15; col. 8, lines 38-65; col. 9, lines 18-24; col. 10, lines 10-25; col. 6, lines 24-32); binding a first process (process) to the first resource pool (class) (col. 5, lines 26-38), so that the first process has access to the plurality of different computer system resources allocated to the first resource pool (col. 7, line 64 – col. 8, line 15; col. 8, lines 38-65; col. 9, lines 18-24; col. 10, lines 10-25); and storing a representation of the resource allocation to non-volatile storage (via storing the resource max/min limits for each class in a share/tier profile storage device) (col. 5, lines 16-25; col. 5, lines 33-36; col. 8, lines 57-65; col. 14, lines 5-8) so that the resource allocation can be reused after a machine failure (via retrieving the resource max/min limits for each class from a share/tier profile storage device) (col. 5, lines 16-25; col. 5, lines 33-36; col. 8, lines 57-

65; col. 14, lines 5-8). BRENNER teaches setting a condition if the resource requirements are not satisfied, i.e. limits / percentage goal exceeds their limits by overcommitting resources. However, BRENNER does not explicitly state that this condition is an error condition. The claim language provides no details as to what constitutes an error condition or how it is handled. It would be obvious to one of ordinary skilled in the art at the time of the invention that the overcommitting setting condition of signaling an orange range condition would constitute an error condition and therefore would be obvious in view of BRENNER that the handling of the orange condition does not allocating additional resources to the class.

As to claim 2, BRENNER teaches allocating the plurality of different computer system resources (resources) to one or more resource pools (classes) involves: partitioning each of the plurality of different computer system resources (resources) into one or more partitions (classes), wherein a first partition is associated with a first resource (resource) and a second partition is associated with a second resource (resource); allocating the first partition to a single resource pool (tier), so that only processes associated with the single resource pool can access the first partition; and allocating the second partition to multiple resource pool (tier) so that processes associated with the multiple resources pools can share the second partition (col. 11, lines 16-32; col. 7, line 64 – col. 8, line 15; col. 8, lines 38-65; col. 9, lines 18-24; col. 10, lines 10-25; col. 6, lines 24-32).

As to claim 4, BRENNER teaches establishing the first resource pool involves selecting a representation of the first resource pool from a plurality of possible files (via retrieving the resource max/min limits for each class from a share/tier profile storage device) (col. 5, lines 16-25; col. 5, lines 33-36; col. 8, lines 57-65; col. 14, lines 5-8). Official Notice is taken in that file systems are well known storage devices and therefore it would be obvious to one skilled in the art at the time of the invention that a file is selected and retrieved from the storage device that represents the resource max/min limits for each class in order to acquire the values.

As to claim 6, BRENNER teaches storing the representation of the resource allocation involves storing a representation of each of the one or more resource pools (classes) along with associated resources (via storing the resource max/min limits of each resource for each class to a share/tier profile storage device) (col. 5, lines 16-25; col. 5, lines 33-36; col. 8, lines 57-65; col. 14, lines 5-8).

As to claim 7, BRENNER teaches storing a representation of the resource allocation (via storing the resource max/min limits of each resource for each class to a share/tier profile storage device) (col. 5, lines 16-25; col. 5, lines 33-36; col. 8, lines 57-65; col. 14, lines 5-8). However, BHAGAT does not teach that the representation is in an XML format. Official Notice is taken in that XML is well-known data format and therefore would be obvious to one skilled in the art that the representation are stored in an XML format for retrieval.

As to claim 8, BRENNER teaches wherein the first resource pool (class) is associated with a first project (via the classification rules); and wherein the first process is one of a plurality of processes (processes) associated with the first project (via the processes using classification rules to identify the class the process belongs wherein the classes have resource amounts for indicating the amount of system resource shares the classes have) (col. 5, line 48 – col. 6, line 16).

As to claim 10, BRENNER teaches adjusting the resource allocation of resource pools (classes) during system execution (based on performance indication considering minimum and maximum amount of resource shares) (col. 7, line 64 – col. 8, line 15; col. 8, lines 38-65; col. 9, lines 18-24; col. 10, lines 10-25). However, BRENNER does not explicitly indicate that the adjusting is performed dynamically. Official Notice is taken in that it is well known in the art that resource groups are adjusted dynamically and therefore would be obvious in view of the teachings of BRENNER that the classes are dynamically changed based on the performance indication that considers minimum and maximum amount of resource shares. For instance refer to U.S. Patent Application 2003/0028642, and U.S Patents 5,675,797 or 6,957,435.

As to claims 12, 13, 15, 17-19, and 21, reference is made to a computer readable storage medium that corresponds to the method of claims 1, 2, 4, 6-8 and 10 and is therefore met by the rejection of claims 1, 2, 4, 6-8 and 10 above.

As to claims 23, 24, 26,28-30, and 32, reference is made to a computer system that corresponds to the method of claims 1, 2, 4, 6-8 and 10 and is therefore met by the rejection of claims 1, 2, 4, 6-8 and 10 above.

### ***Response to Arguments***

3. Applicant's arguments filed April 7, 2006 have been fully considered but they are not persuasive. Applicant argues that the cited combination does not teach the step of assigning the resources to the resource pools for exclusive use by the assigned processes because the combination teaches assigning class shares which specify the importance of a task and that there is no guarantee that the required resources will actually be available. The examiner disagrees. The claim language in dispute states "the resources are assigned to the first resource pool". Brenner teaches that each class has an associated number of system resources wherein processes in tier 0 being the highest priority tier are assigned exclusive resources (col. 5, lines 61-63; col. 6, lines 4-32). Therefore, although the processes based on their priority are designed to make up a tier / class, since the tiers / classes also have an associated number of system resources, the tier / classes are resource pools and are assigned resources as outlined above. Therefore, the cited claim language is met by the combination as outlined above.



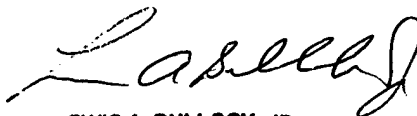
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lewis A. Bullock, Jr. whose telephone number is (571) 272-3759. The examiner can normally be reached on Monday-Friday, 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

July 7, 2006

  
LEWIS A. BULLOCK, JR.  
PRIMARY EXAMINER